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Mechanism for blind curtain or the like

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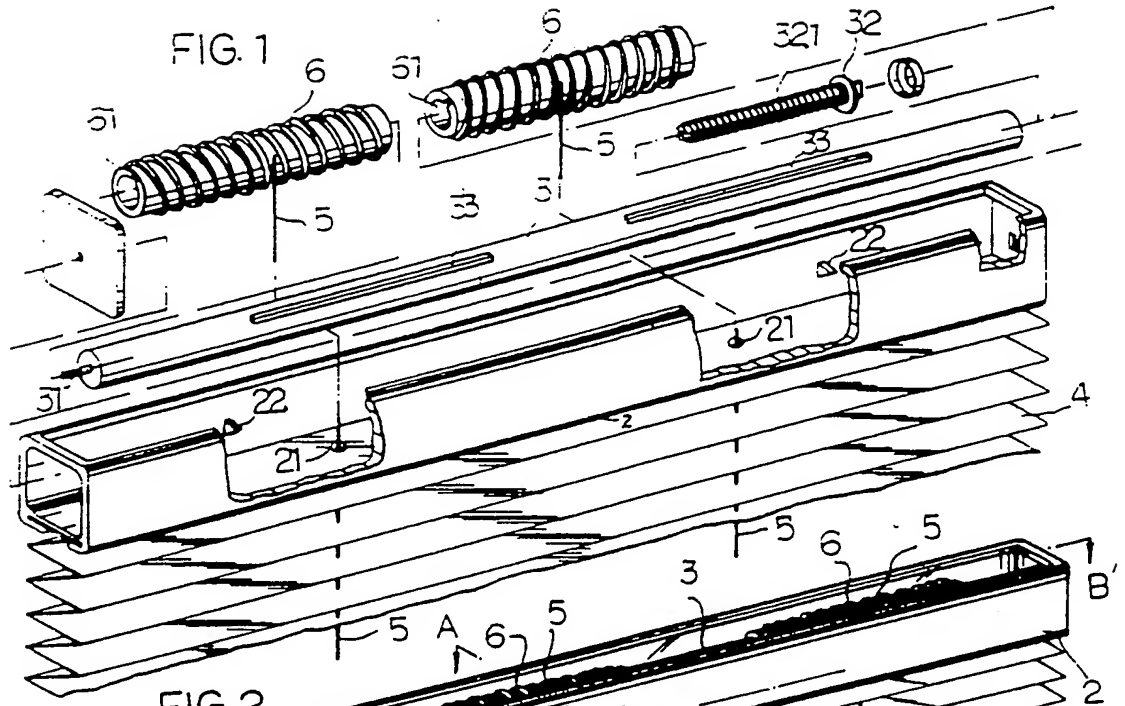


FIG. 2

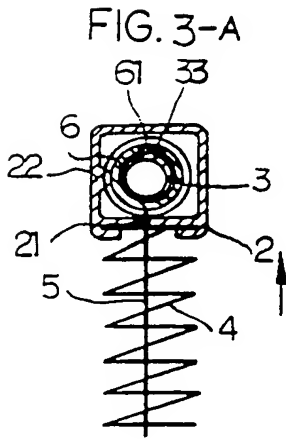
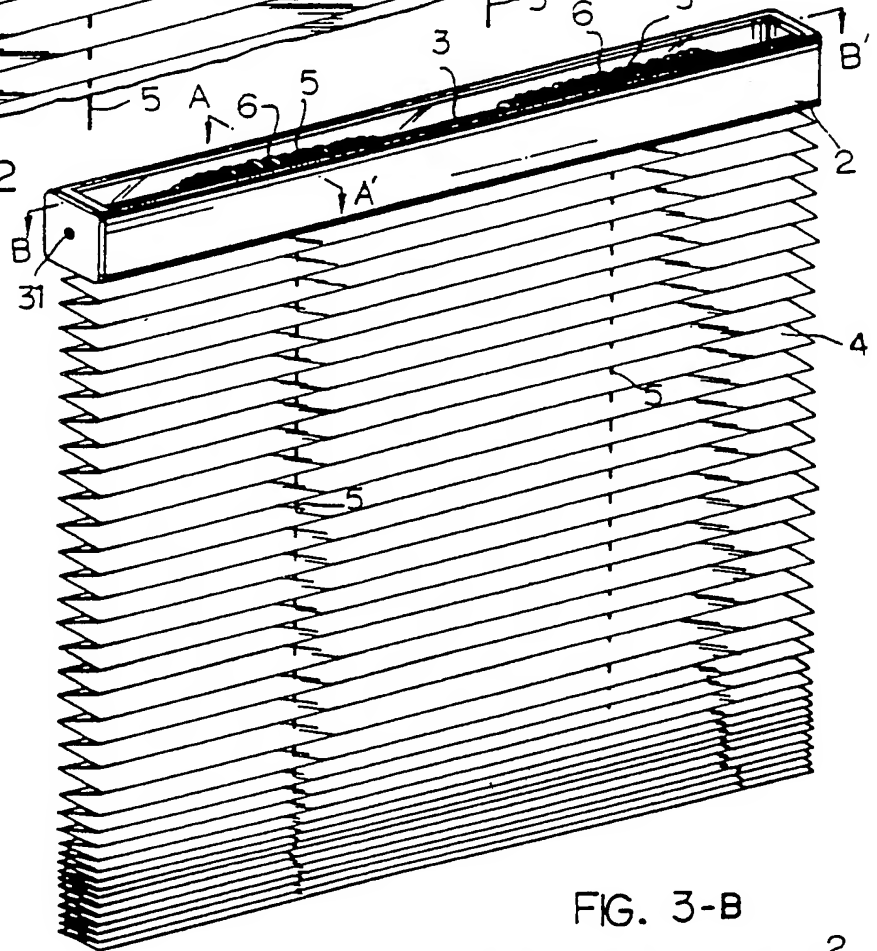


FIG. 3-c

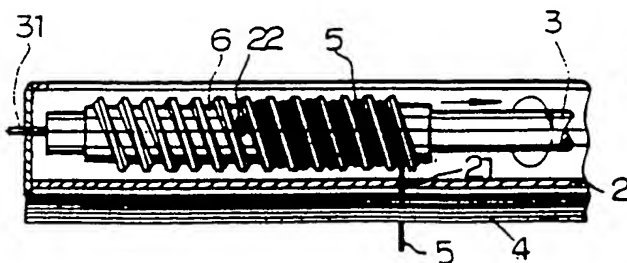
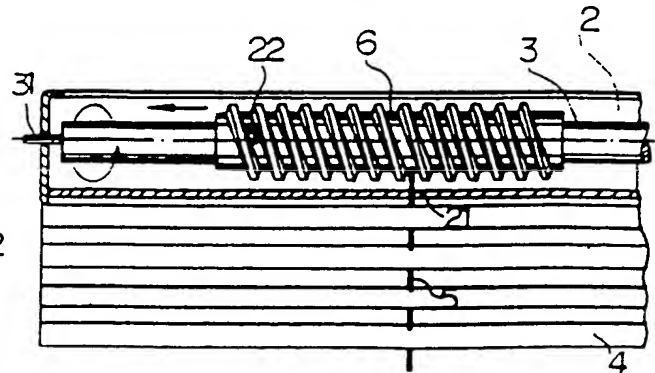


FIG. 3-B



MECHANISM FOR BLIND, CURTAIN OR THE LIKE

The present invention relates to a mechanism
for raising and lowering a blind or curtain or
5 the like.

There is commonly in use a type of window cur-
tain embodying easy-to-carry little screen or
lengthened straight-drawing stretch-out structures,
complete with a movably mounted elastic roller on
10 top, typically installed inside the upper beam of
the curtain, characterised in that control of the
curtain, to full development or else to fold up
by rolling firstly relative to the portion down
below, is typically done by means of two inter-
15 active pull ropes provided within;

The type of execution of the existing window
curtains exemplified by the description in the
last paragraph is admittedly ideal enough in effi-
ciency and convenience for operation, but for that
20 it fails to provide for a neat-setting performance
with respect to the roller regarding a built-in

pull rope. Therefore it is little wonder that much too often it happens that the ropes on being pulled for roll-up turning will cause quite a mess, even intertwinings resulting in mixed and missed roll-
5 ups to be avoided by all means, the worst situation turns up when the ropes get dead-caught in the pulley grooves or chutes such that the window curtain would remain that way and defy corrective measures till it is dismounted all entirely.

10 Accordingly, the present invention provides a mechanism for raising and lowering a blind or curtain or the like, comprising a roller assembly, a mounting arrangement for the roller assembly and at least one tether depending from the roller assembly
15 for attachment to a blind, curtain or the like, the roller assembly comprising a rotatable shaft, a sleeve mounted on the shaft for rotation therewith and movement therealong, the sleeve having a helical groove in the outer surface thereof having a lead not less than the
20 thickness of said tether and the mounting arrangement having a projection which engages the groove to cause the sleeve to move along the shaft as the shaft and sleeve are rotated and said tether being attached to the sleeve for winding thereon and unwinding therefrom
25 as the sleeve is rotated.

Other features and advantages of the present invention will emerge from the following description of an embodiment given by way of illustration but not in any way limiting, with reference to the accompanying
5 drawings in which:

Figure 1 is an exploded perspective view showing an embodiment of a venetian blind according to the invention,

Figure 2 is a perspective of the blind of Figure 1,

Figure 3-A is a cross section view along segment A-A'
10 as given in Figure 2;

Figure 3-B is a cross section view along segment B-B' as given in Figure 2; and

Figure 3-C is a cross section view along segment B-B' as given in Figure 2 of the blind in a different condition.

15 Referring firstly to Figure 1 and Figure 2 it will be seen that the roller type blind according to one embodiment of the invention comprises a grooved upper beam 2 in which there is mounted lengthwise a spring-loaded roller 3. The roller 3 governs the roll-up
20 movement of each internal pull rope 5, which is associated with the medium of each wavelike layer that forms the body of the curtain 4 down from the upper beam 2, so that the curtain can be lowered down or lifted up as desired.

The spring-loaded roller 3 is of conventionally known
25 structure incorporating essentially an engagement spindle

31 projecting from one end thereof, and a grip means
32 having a torsion spring 321 therein provided on
the other end. The grip means 32 incorporates an
easy going catcher device which permits automatic
5 resetting of the blind by the spring loading which
follows rotative fastening of the spring at a certain
position.

A pair of keys 33 is provided on either side
of the roller 3, each extending longitudinally of the
10 roller. The keys 33 permit synchronised rotation of
a pair of sleeves 6 with the roller 3 by engagement
of the keys 33 with keyways 61 extending longitudinally
of the sleeves 6. The surface of the sleeves 6 is
treated to yield screwlike curves defining a helical
15 groove. The top end of each internal pull rope 5 for
the curtain 4 is fitted to a point midway along the
helical groove on the periphery of a respective screw
sleeving 6 via an access hole 21 through the bottom
of the upper beam 2, so that the internal pull rope
20 5 will roll about the periphery of the screw sleeving 6
as the curtain 4 is drawn up to let in sunshine.

It has also been achieved that when each screw
sleeving 6 is in a position in which it extends roughly
equidistantly to either side of its respective access
25 hole 21, a catch 22 provided on the inner surface of

the upper beam 2 engages in the helical groove of the screw sleeving 6 towards one end thereof. Thus, while the screw sleeving 6 rotates in step with the spring-loaded roller 3, the screw sleeving 6 will necessarily have to effect longitudinal movement because of the checking effect exerted by the catch 22 against the periphery of the helical groove.

Referring to Figure 3A it will be seen that the screw sleeving 6 is keyed onto the spring-loaded roller 3 by the keys 33 to rotate therewith in response to the uprolling effects discharged by the pull ropes 5 to result in the uprolling of all the layers of the curtain 4 to the top dead point. The winding up of the curtain 4 by the internal pull ropes 5 is accompanied by longitudinal displacement of screw sleeving 6 due to the engagement of catch 22 in the helical groove, resulting in movement of the screw sleeving in the on-going direction of helical groove.

Referring further to Figure 3-B it will be seen that when the curtain 4 is at its fully stretched position, the internal pull rope 5 is fully withdrawn, and its top fixing point lies midway along the helical groove associated with the screw sleeving 6. At the same time, catch 22 is engaged in the helical groove at a corresponding point towards one end of the screw

sleeving 6.

When the spring-loaded roller 3 is meant to roll up the curtain, the screw sleeving 6 rotates with it and draws in the internal pull rope 5 by winding it around the helical groove. The screw sleeving 6 is checked by the catch 22 in the helical groove which causes the screw sleeving 6 to be displaced leftwards, whilst being held to rotate with roller 3 by key 33 at the same time. As a result, the internal pull rope 5 by its end will be carried along the helical groove and be wound up in the rolling procedure. The overall result as seen from a point beyond the curtain is a neat run withdrawal of the curtain 4 into a well-folded formation, like what is shown in Figure 3C.

By like reasoning it will become apparent that as curtain 4 is drawn down for full development, the descending pull rope 5 will of course pull the screw sleeving 6 to run in the opposite direction. At the same time, the pull rope 5 causes rightwards displacement of the screw sleeving 6 as a result of the helical groove of the screw sleeving 6 being engaged by catch 22, thus putting the curtain to the status of full development like what is shown in Figure 3B.

The provision of having a pair of internal pull ropes 5 lining up on either side of the curtain 4, and

the installation of a pair of screw sleeveings⁶ serving to drive the pull ropes 5 to operate the blind, ensures a level-set and straight-going lifting or letting down of the curtain 4 is maintained.

5 An advantage of this embodiment of the invention is that it provides a tidy-rolling structure for the internal pull rope in a roller type window curtain with a view to improve the defects of the possibilities of roller rope system being pulled into a mess that is
10 much too often the case with a window curtain using elastic rollers as the transmission means, the very type of curtains that dominates in households or indoor premises everywhere across the globe.

 Another advantage of this embodiment of the present
15 invention is that it provides such a tidy-rolling structure for the internal pull rope in a roller type window curtain, characterised in that the tidy-rolling function is achieved by a pair of rollers sleeved in helical sleeves installed about the curtain alone, in
20 co-ordination with keyacted compelled precision, synchronised displacement on the part of a helical groove, all using simply but rigidly structured components designed to minimise faults and disorders whatever.

CLAIMS:

1. A mechanism for raising and lowering a blind
or curtain or the like, comprising a roller assembly,
a mounting arrangement for the roller assembly and at
3 least one tether depending from the roller assembly
for attachment to a blind, curtain or the like, the
roller assembly comprising a rotatable shaft, a sleeve
mounted on the shaft for rotation therewith and movement
therealong, the sleeve having a helical groove in the
10 outer surface thereof having a lead not less than the
thickness of said tether and the mounting arrangement
having a projection which engages the groove to cause
the sleeve to move along the shaft as the shaft and
sleeve are rotated and said tether being attached to
15 the sleeve for winding thereon and unwinding therefrom
as the sleeve is rotated.

2. A mechanism as claimed in Claim 1 wherein the
tether is received in the helical groove of the sleeve.

20

3. A mechanism as claimed in Claim 1 or Claim 2
comprising a pair of said tethers and a pair of said
sleeves.

25

4. A mechanism as claimed in Claim 3 wherein

the helical grooves of the two sleeves are oppositely handed.

5. A mechanism substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

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